

= EP-A-0,773,246

(21)

97-261290/24	A25 B07 D21 F06 (A26 A96 A97 D18 F09)	BADI 95.11.08 *EP 773246-A1 A(5-G1B, 10-E, 12-B2, 12-B2A, 12-B3A, 12-V1, 12-V4) B(4-C3, 4-N2, 14-R2) D(7-A, 8-B5) F(3-E1, 5-A6B) .3
BASF AG 95.11.08 95DE-1041658 (97.05.14) C08G 18/12, A61K 7/06, C08G 18/66		
Water-soluble or -dispersible graft polymer from polyurethane and protein - used in cosmetics, especially compositions for strengthening hair, and in coatings for pharmaceuticals, paper, textiles and leather (Ger)		The graft polymers are used in cosmetics, especially for hair cosmetics, particularly for fixing hair; or as redispersible coating compositions for processing pharmaceuticals, paper, textiles, or leather (all claimed).
C97-084602 R(BE CH DE ES FR GB IT LI NL) Addnl. Data: NGUYEN K, SANNER A, HOESSEL P 96.11.04 96EP-117641		
Water-soluble or -dispersible graft polymers (I) and their salts are claimed. The polymers are from a water-soluble or -dispersible polyurethane prepolymer (A) with terminal NCO groups, and a protein (B) with free amino groups.		
Also claimed are (1) a process for preparing (I) by reacting (A) with (B); and (2) a hair-treatment agent containing (I), especially in the form of a hair spray.		
		<u>ADVANTAGE</u> The compositions are more easily washed out of hair, are biodegradable, and have low (below 60%) content of volatile organic compounds (VOC).
		<u>PREFERRED POLYMER</u> (I) is produced from (a) a compound with at least 2 active H atoms, (b) a compound with at least 2 active H atoms and at least 1 acid, tertiary amine or ionogenic or ionic group, and (c) a diisocyanate. The equivalent ratio (NCO):(active H) = >1:1 to 1.2:1. (b) is preferably a carboxylate and/or sulphonate group or a group containing nitrogen, especially dimethylolpropanoic acid. (a) contains a polyester diol (a1) and/or a silicone of formula (a2)
		EP 773246-A+

in weight ratio (a1):(a)+(b) = at least 30 (preferably 40-90):100 and (a2):(a)+(b) up to 50:100.	X-(CH ₂) _m -(SiR ₁ R ₂ -O) _n -SiR ₁ R ₂ -(CH ₂) _m -X (a2)
R ₁ , R ₂ = 1-4C alkyl, benzyl or Ph; X = OH or NH ₂ ; m = 2-10; n = 3-50. (B) is casein or a hydrolysate product from casein.	
<u>PREFERRED PROCESS</u> The polyurethane prepolymer and the protein are reacted in an aqueous or aqueous-alcoholic solution. The protein solution contains a tertiary amine.	1000) (prepared from isophthalic acid, adipic acid and hexane diol), 0.05 Mol polyethylene glycol (Mw 1500) and 1.25 Mol dimethylolpropanoic acid in methyl ethyl ketone (MEK) at 80 ° C. The solution was cooled immediately to 50 ° C and 1.9 Mol of isophorone diisocyanate was added dropwise, and stirring at 90 ° C until the NCO content of the mixture remained constant. After cooling to room temperature, (116.5 g of casein (as a 15% aqueous casein-triethanolamine solution (12.1% by wt.)) was added dropwise, followed by stirring until no NCO-groups could be detected. After neutralisation with 2-amino-2-methylpropanol, MEK was distilled off at 40 ° C in a vacuum, giving an aqueous dispersion of a graft polymer which could be sprayed dried.
<u>PREFERRED AGENT</u> The hair-treatment agent contains 0.2-20 wt.% (I) and 0.1-10% of a known hair-setting polymer.	A hand pump spray composition with 55 wt.% VOC contained 5 wt. of the graft polymer, 40% of water, 55% of ethanol, and perfume and surfactant. The composition was sprayed on hair. The film which formed was easily redispersible in water/ethanol (1:1). The curl retention on hair was 65% and the flexing strength of treated hair strands was 356 cN. (LJ) (14pp510DwgNo.0/0) SR:DE2144878 DE3831169 EP619111 FR2152240 GB2086395
<u>EXAMPLE</u> A solution was prepared by heating 0.5 Mol polyester diol (Mw	EP 773246-A

4-11-95

Eq. to CA 2, 189, 886

1.9
1.3

(22)

M / :

32/ew

H. Fickentscher, Cellulose Chemie 13 (1932) 58-64, 71, 74

ABS: A system for the characterization of cellulose and cellulose derivatives based on their respective viscosity in solution is described.